(No Model.)

J. F. GILLILAND.

CYLINDER FOR ROTARY ARMATURES.

No. 276,024. Patented Apr. 17, 1883.

Fig. 1.

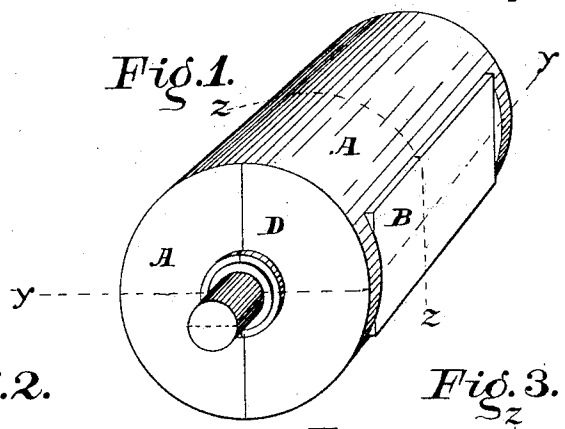


Fig. 2.

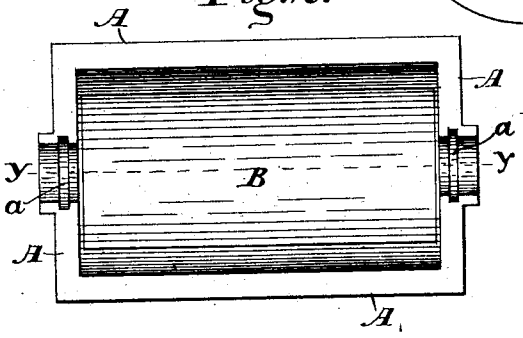


Fig. 3.

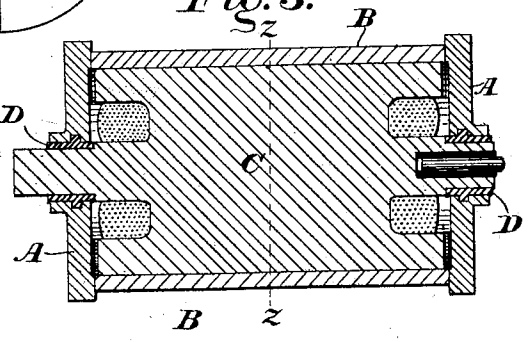


Fig. 4.

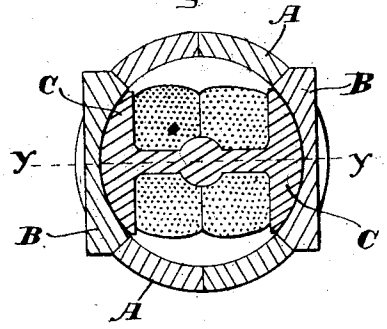
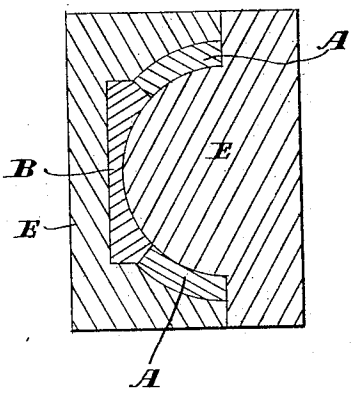


Fig. 5.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JAMES F. GILLILAND, OF INDIANAPOLIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO DANIEL E. STONE AND AUGUST B. MEYER, OF MARION COUNTY, AND JOHN H. ZELLER, OF HARMONY, INDIANA.

CYLINDER FOR ROTARY ARMATURES.

SPECIFICATION forming part of Letters Patent No. 276,024, dated April 17, 1883.

Application filed December 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. GILLILAND, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Cylinders for Rotary Armatures, of which the following is a specification.

My said invention consists, first, in a cylinder for the rotary armatures of magneto-electric generators, which is composed of parts adapted to be held together by the magnets without other fastenings; second, in such a cylinder the heads whereof are integral with the sides; third, in a cylinder each half of which is produced in complete form by casting diamagnetic material in a mold one portion of which is occupied by a magnetic pole-piece; and, fourth, in some details of construction, all as will be hereinafter described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a perspective view of a cylinder embodying my invention; Fig. 2, an inside view of one-half thereof, the rotary armature being removed; Fig. 3, a longitudinal section through the complete cylinder on the dotted line *y y;* Fig. 4, a transverse section of the same on the dotted line *z z;* and Fig. 5, a transverse section of the mold in which the halves are cast, one of said halves being shown therein.

In said drawings, the portions marked A represent the cast cylinder portions; B, the pole-pieces; C, the revolving armature; D, bushings for the bearings for the armature-journals, and E the mold.

Each of the castings is molded to form, in connection with the pole-piece, a full half of the cylinder, including one-half of each head, and two of these halves, when laid together, form a complete cylinder. The process of producing these halves or sections is as follows: A mold is prepared the cavity in which is of the form of the completed section. (See Fig. 5 for cross-section.) The pole-piece B, having been previously prepared, is laid in the portion of the cavity formed to receive it, and molten metal is then poured in, which fills the remaining space and forms the casting A. The mold is formed with a rib at each end, which leaves the groove *a* in the casting, which prevents endwise movement of the bushings D. The preferable material for the pole-pieces is cast-iron, as is usual, and for the casting A white-metal; but I do not limit myself to materials, except so far as is necessary to make the invention operative, as my present invention relates only to the construction of the cylinders. It will be understood, of course, that the cylinders may be divided into more parts than two without departing from my invention. It will also be understood that the sides may be left partly open between the pole-pieces, as a solid-sided cylinder is not necessary to the operation of a rotary armature so long as the pole-pieces are properly arranged.

The armature C is or may be of any ordinary or approved form suitable for use in a device of this character.

The bushings D are preferably of brass, and are each formed in a single piece, as shown. They are placed on the armature-journals by being slipped over the ends, and serve the usual purposes of journal-box linings. Being whole, they serve the further purpose of holding the halves of the cylinder in proper relation, as they enter partly into both. They are preferably provided with ribs, which fit into the grooves *a* and aid in the above object, besides preventing any endwise movement either of the bushings themselves or of the armature.

The cylinder produced in this manner needs no fitting whatever, but is ready for use as soon as cast. The halves are held together by the magnets, and thus all fastening devices are entirely dispensed with. Being cast in a solid metal mold, every cylinder half is exactly like every other, and any two halves can therefore be placed together indiscriminately, and, all parts being interchangeable, any worn-out or broken part can be at any time replaced without difficulty.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A cylinder for rotary armatures, composed of parts, each part being a longitudinal section of the cylinder, and having a corresponding portion of the cylinder-heads cast integral therewith, substantially as set forth.

2. A cylinder for rotary armatures, composed of castings A, having pole-pieces B incorporated therewith, said castings A including the ends or heads as well as the sides of the cylinder, substantially as set forth.

3. In a cylinder for rotary armatures, which, including the heads, is divided longitudinally into parts, the combination, with said parts, of bushings D for the armature-journals, which serve also to hold the parts in proper relation, substantially as set forth.

4. The combination of the cylinder parts A, pole-pieces B, armature C, and bushings D, said bushings being provided with ribs which fit into grooves in the head portions of said cylinder parts, substantially as described, and for the purposes specified.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 1st day of December, A. D. 1882.

JAMES F. GILLILAND. [L. S.]

In presence of—
C. BRADFORD,
E. W. BRADFORD.